

INTERNAL DELIBERATIVE – DO NOT DISTRIBUTE 3/13/18

**2015 Ozone NAAQS Designations: Milwaukee, WI Area**  
**Briefing for Bill Wehrum**  
 March xx, 2018

**Purpose:** Discuss decisions needed to complete ozone designations for the Greater Milwaukee, WI area by April 30, 2018.

**Designations Issues Needing Input:**

\* Whether to finalize the EPA proposed nonattainment boundary for the Greater Milwaukee, WI area, and if not:

- o ~~Designate the entire state of Wisconsin as A/U despite violating monitors and contributing emissions; or~~
- o ~~Use a "distance from shoreline" for Reduce the size of the intended nonattainment area to only include narrow parcels of land where air is above 70 ppb surrounding the violating monitors in Ozaukee and Milwaukee (excluding the urban core), and Racine Counties, including extending 4.2 miles inland in Racine County (avoiding proposed FoxxCen facility);~~
- or
- o ~~Reduce the size of the intended nonattainment area to only include narrow parcels of land surrounding the violating monitors in Ozaukee and Milwaukee (excluding the urban core), and~~
- o ~~designate Racine County as Unclassifiable; or~~
- o ~~Reduce the size of the intended area to make Racine Designate Racine County as a partial county, inclusive and east of I-94 which is consistent with Kenosha County to the south and captures most contributing emissions in Racine (would not include the proposed FoxxCen facility, which is why this area is a Tier 1 area).~~

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**Milwaukee, WI Area**

~~EPA proposed recommended 5 counties within the Milwaukee, WI proposed nonattainment area (Milwaukee, Ozaukee, Racine, Washington, and Waukesha).~~

Potential Options for a Nonattainment Designation

1. Finalize EPA proposed boundary of whole counties area: Milwaukee, Ozaukee, Racine, Washington, and Waukesha.
2. Designate the entire state as attainment. Note that the state of Indiana requested this too.  
*\*\*Significant legal and technical concerns with this option.\*\**
3. Reduce proposed area to two noncontiguous narrow parcels of land surrounding the violating monitors in Ozaukee, Racine, and part of Milwaukee (excluding the core urban areas) Designate narrow parcels of land where air is above 70 ppb in Ozaukee, Milwaukee, and Racine, and entire counties of Waukesha and Washington.  
*\*\*Significant legal and technical concerns with this option.\*\**
4. Reduce proposed area to a narrow parcel of land surrounding the violating monitors in Ozaukee and Milwaukee and designate Racine as Unclassifiable.

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3. \*\*Significant legal and technical concerns with this option.\*\*

4.5. Designate Reduce proposed area to only a partial county for Racine County, inclusive and east of I-94, with the four full-counties originally proposed (Milwaukee, Ozaukee, Waukesha, and Washington).

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State Designation Recommendation

- If EPA does not designate the whole state as A/U (*Option 2*), WDNR urges EPA in an April, 2017, letter to minimize nonattainment area to a narrow parcel of land in Ozaukee and Milwaukee counties surrounding the violating monitors, which excludes the urban core emissions areas, and designate Racine County as Unclassifiable (*Option 3*). In a February, 2018, letter, WDNR modified this recommendation to only the same designate as nonattainment narrow parcels of Ozaukee and Milwaukee counties and a 4.2-mile parcel from the shoreline inland for Racine County boundaries for some counties in the Milwaukee, WI area (*Appendix A Option 4*). See Figure 2.
  - Racine County: No greater than 4.2 miles inland.
  - Milwaukee County: 2.9 miles inland boundary, and no more than 2.8 miles south of Bayside monitor.
  - Waukesha County: entire county.
  - Ozaukee County: No greater than 2.9 miles inland.

Washington County: entire county

EPA Program Staff Evaluation of Options

**Option 1: Finalize Proposed Area — Designate all of Milwaukee, Ozaukee, Racine, Washington, and Waukesha Counties as Nonattainment.**

- **Background**
  - Initial area of analysis was the 8-county CSA
  - Eliminated 3 counties due to low contribution
- **Review of Ambient Monitoring Data** - 2 violating monitors in Ozaukee County, 1 violating monitor in Milwaukee County. Racine County did not have a valid DV for 2014-2016. See below.

County, State	AQS Site ID	2014 -2016 DV	Preliminary 2015-2017 DV
Milwaukee, WI	55-079-0026	0.068	0.067
	55-079-0085	<b>0.071*</b>	<b>0.071</b>
	55-079-0010	0.064	0.065
Ozaukee, WI	55-089-0008	<b>0.071*</b>	<b>0.071</b>
	55-089-0009	<b>0.073*</b>	<b>0.073</b>
Racine, WI	55-101-0020	N/A	<b>0.074</b>
Washington	No monitor		
Waukesha, WI	55-133-0027	0.066	0.065

- Racine County - No valid DV for 2014-2016, but 74 ppb DV based on 2015-2017 data.
  - 2014 data is missing due to a condemned structure. Monitor was moved 5 miles north, but not running in time to obtain 2014 ozone data.
  - \* Prior to the move, monitor in the original location since 1977<sup>9</sup>, with violating ozone data through 2013.

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- **Review of Emissions** – Racine County has greater emissions than Washington County, which was recommended by the State of Wisconsin as nonattainment (entire county).

County, State	Total NO <sub>x</sub> (tpy)	Total VOC (tpy)
Milwaukee, WI	22,012	17,016
Ozaukee, WI	3,107	2,003
Racine, WI	4,153	4,296
Washington, WI	3,543	3,625
Waukesha, WI	9,685	10,526

Milwaukee Area	NO <sub>x</sub>	VOC
Milwaukee (violating & contributing)	22,012	17,016
Waukesha (contributing)	9,685	10,526
Racine (contributing)	4,153	4,296
Washington (contributing)	3,543	3,625
Ozaukee (violating & contributing)	3,107	2,003

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- Racine County Emissions are comparable to other full counties in other nonattainment areas.

Contributing Counties without violating monitors	NO <sub>x</sub> (tpy)	VOC (tpy)
St. Clair IL (St. Louis)	7,638	5,848
Monroe IL (St. Louis)	2,682	1,171
Geauga OH (Cleveland)	1,735	3,100
Medina OH (Cleveland)	3,750	4,646
Licking OH (Columbus)	4,285	4,733
Fairfield OH (Columbus)	4,360	3,741
Delaware OH (Columbus)	4,908	4,838
Clark, IN (Louisville)	4,157	4,253
Floyd, IN (Louisville)	3,686	2,572

- **Meteorology** - indicates contribution from across all of Racine County to violating monitors in Milwaukee and Ozaukee Counties all 5 counties (Milwaukee, Ozaukee, Waukesha, Racine, Washington). See HYSPLIT trajectories in Figure 1.

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***Option 3:** Accept WDNR recommendation of a shoreline boundary for Racine, Milwaukee, and Ozaukee, and entire counties of Washington and Waukesha as nonattainment. Option 4: Similar to Option 3 only designate Racine as Unclassifiable.*

- WDNR provides a “distance from shoreline” approach for narrow parcels of land where air is above 70 ppb in Ozaukee, Milwaukee, and Racine counties (Figure 2)

**Pros**

- State and industry commenters would likely be satisfied with this option (4.2 miles inland would exclude proposed Foxconn site -- see Figure 3.) and with Option 3.

**Cons**

- These options ignore contributions from Wisconsin emissions.
- These options deviate from national consistency.
- These options have significant legal and technical concerns.
- Concerns about Wisconsin’s “distance from shoreline” contour approach.
  - Extends 4.2 miles inland in Racine County.
  - Extends 2.9 miles inland in Ozaukee and Milwaukee counties, but excludes attaining monitors in Milwaukee County, which are located in the portion of the county where high density of precursor emissions originate.
  - Contours exclude the majority of the emissions sources in the 5-county area.
- Source apportionment modeling from WDNR/LADCO shows that Wisconsin sources do contribute around 7-15% or approximately 4.9-10.5 ppb to each of the 3 violating monitors in the area
- 5-factor analysis with HYSPLIT indicates contribution (Figure 1)

***Option 5:** Designate partial county for Racine County inclusive and east of I-94 and entire counties of Milwaukee, Ozaukee, Washington, and Waukesha as nonattainment.*

- Designate Racine County with same North to South boundary as Kenosha County for the Chicago area (history below)
- This would capture 87% of point source NOx emissions and 82% of point source VOC emissions in Racine County consistent with what we did for other partial county areas.
- EPA historical justification for partial Kenosha County** (which is located just south of Racine County). Kenosha is part of the Chicago nonattainment area.
  - When establishing the partial county boundary for Kenosha County under the 2008 ozone standard, it was determined that the area included within the nonattainment boundary contained approximately 91% of the County’s NOx emissions and 86% of the County’s VOC emissions; 77 percent of the County’s population; and included I-94, which was important for capturing on-road mobile emissions and for transportation conformity.
- Kenosha is downwind relative to the rest of the Chicago area.
- Whereas Racine is upwind of the Milwaukee violating area.

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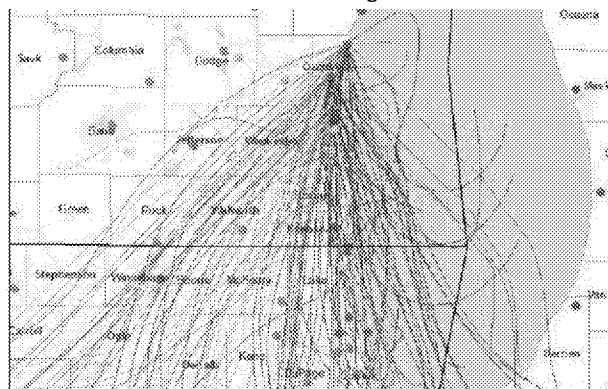
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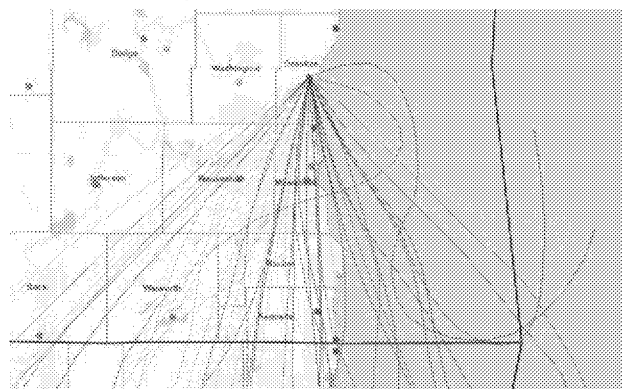
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**Figure 1** Milwaukee area HYSPLIT: all 3 violating monitors [top left] and each individual violating monitor in the Milwaukee area [top right and bottom row] 2016 exceedance days

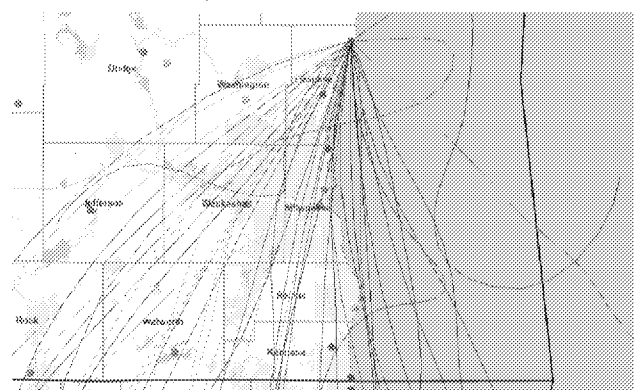
HYSPLIT at each of three violating monitors



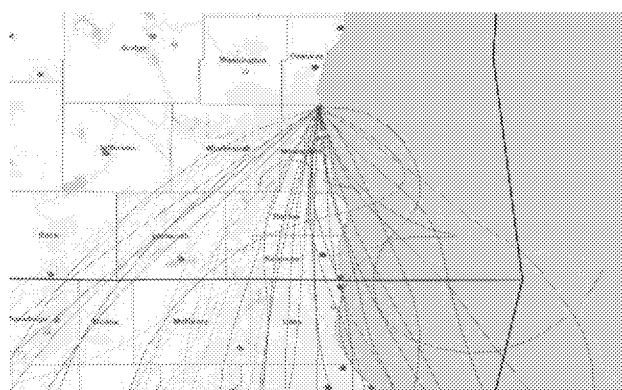
Ozaukee County



Ozaukee County



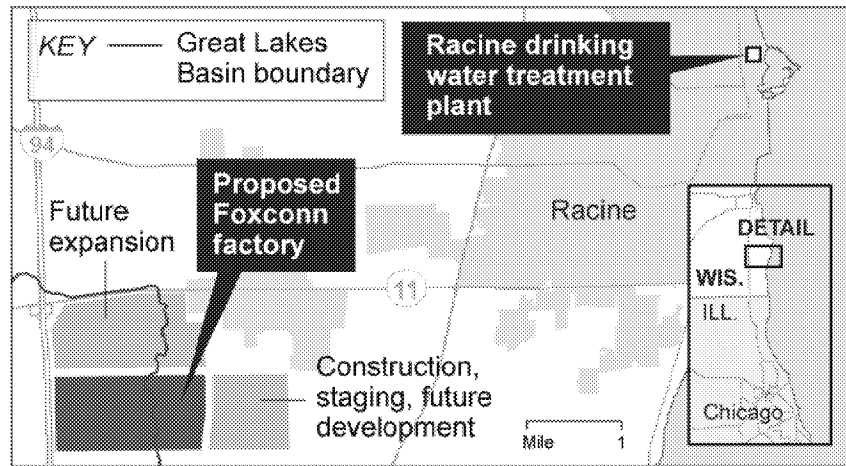
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**Figure 3:** Proposed Foxconn factory site (East of I-94 in Racine County, WI).



SOURCES: Wisconsin Department of Natural Resources, Esri @chitribgraphics

Source: Chicago Tribune, March 7, 2018, (<http://www.chicagotribune.com/news/local/breaking/ct-met-foxconn-lake-michigan-water-20180305-story.html>)



